Northern Michigan University (Marquette Co, MI)

Time: 50 minutes.

1. Write the following method:

```
func RepeatedDouble (_ s:String) -> Bool { ... }
```

This function takes the string s and returns true if there are four characters in a row in s that form a "repeated double," such as ABAB or XYXY. The same pattern of length two appearing twice in a row. For example, SLYLY contains a repeated double and so would cause the method to return true.

```
func RepeatedDouble (_ s:String) -> Bool {

    var a = "\0"
    var b = "\0"
    var c = "\0"

    for d in s {
        if a==c && b==d {return true}
        a = b
        b = c
        c = d
    }
    return false
}
```

2. Write Swift code that uses an sqlite database (already open) with a table called TelephoneBook containing fields named LastName, FirstName, and TelephoneNumber. Your Swift code should print (to the screen) the names and phone numbers (alphabetically by name) of everyone in the first half of the alphabet.

```
sqlite3_prepare_v2(db,
"select LastName,FirstName,TelephoneNumber from TelephoneBook where LastName
< 'N' order by LastName,FirstName",-1,&stmt,nil)
while sqlite3_step(stmt)==SQLITE_ROW {
  let ln:String = String (cString:sqlite3_column_text(stmt,0));
  let fn:String = String (cString:sqlite3_column_text(stmt,1));
  let tn:String = String (cString:sqlite3_column_text(stmt,2));
  print ("\(ln) \(fn) \(tn)")
}
sqlite3_reset (stmt)
sqlite3_finalize (stmt)
```

3. Write the methods in ViewController that display two TextFields on the screen (tf1 and tf2) and one Button (butt) (all of these variables must be declared but they have been placed on the Storyboard). The button ALREADY contains the text "CLICK" (from the Storyboard). The ViewController should manually add an action to the button so that when the button is clicked, tf2 will contain a copy of the text of tf1, but with all of the E's (upper and lowercase) removed.

```
class ViewController: UIViewController {
```

Northern Michigan University (Marquette Co, MI)

CS344-01-25F: iOS / iPhone Programming (Andrew A. Poe) Name: _____
Midterm Examination (Exam 1) Page 2/2   Friday 10 October 2025 3:00 P.M. EDT

```
    @IBOutlet var tf1:UITextField?
    @IBOutlet var tf2:UITextField?
    @IBOutlet var butt:UIButton?
    override func viewDidLoad() {
        super.viewDidLoad()
        butt!.addTarget(self, action: #selector(Click), for:
UIControl.Event.touchUpInside)
    }

    @objc func Click () {

        tf2!.text = ""
        var ct = 0
        for ch in tf1!.text! {
            if ch!="E" && ch!="e" {
                tf2!.text+=ch
            }
        }
    }
}
```

4. Write a ViewController that does not use the storyboard and creates one label. The label should be 50 units high; it should take up half the width of the view, and should be centered on the view, both horizontally and vertically. (Use `view.frame.size.width and view.frame.size.height` as appropriate.

```
class ViewController: UIViewController {

    var lab:UILabel?

    override func viewDidLoad() {
        super.viewDidLoad()
        lab = UILabel()
        lab!.frame = CGRect (x:view.frame.size.width/4 , y:
view.frame.size.height-25, width: view.frame.size.width/2, height: 50)
        view!.addSubview (lab!)
    }
}
```